California Global Warming Solutions Act of 2006

GHG Reporting Tool Training
Electricity Generating and Cogeneration Facilities

California Air Resources Board
March 27, 2009

1

Participation Information

■ **Webinar Registration Information**
Pre-register to participate.
https://www2.gotomeeting.com/register/123711397

■ **Training Information**
http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-tool.htm

■ **Regulation and Staff Report**
http://www.arb.ca.gov/regact/2007/GHG2007/GHG2007.htm

2

Using the Webinar

■ Preregistration is required:
https://www2.gotomeeting.com/register/123711397

■ For Audio, each participant has a unique dial-in and access code:
  ■ Numbers visible after joining webinar
  ■ Must enter Audio PIN to join audio
  ■ Call is billed as normal long-distance call

■ ARB staff will mute/and unmute lines
  ■ "Raise Hand" to have your line activated for verbal questions

■ Type questions into Chat box for text questions

3

Additional Reporting Tool Training
(see training website for materials)

Reporting Sector	Date	Time (PDT)
General Stationary Combustion	March 17	10:00 a.m. to 12:00 p.m.
Cement Plants	March 26	10:00 a.m. to 12:00 p.m.
Electricity Retail Providers & Marketers	March 26	1:00 p.m. to 3:00 p.m.
Electricity Generating & Cogeneration Facilities	March 27	10:00 a.m. to 12:00 p.m.
Refineries & Hydrogen Plants; Oil & Gas Production	March 30	9:30 a.m. to 12:30 p.m.

4

Agenda

- Introduction
- Reporting Tool Overview
- Demonstration
  - GSC Facility with Electricity Generating or Cogeneration Facility
- Additional Emitting Activity Instructions
  - Topping Cycle Cogeneration Facility
  - Bottoming Cycle Cogeneration Facility
- Questions and Comments

5

Mandatory Reporting

- Regulation is now in effect
- Schedule modification (2009 only):
  - All reports on 2008 emissions are due June 1, 2009
  - Provides additional time for some reporters
  - See Regulatory Advisory
    - http://www.arb.ca.gov/cc/reporting/ghg-rep/ghgschedadvisory.pdf
  - Extra time for 2009 submittals only

6

Preparing for Reporting

- 2009: Must report 2008 emissions in 2009
  - See Regulation and Guidance for methods
  - Reports due June 1, 2009
  - Verification is optional

- 2010: Emissions data report must meet full requirements of the regulation
  - Monitoring equipment and procedures should be in place by January 1, 2009
  - Reports due April 1 and June 1, depending on sector
  - Verification is required

7

Purpose of this Training

- Demonstrate use of GHG Reporting Tool
- Assumes basic understanding of reporting requirements
  - Will not discuss GHG calculation methods
  - Refer to *Instructional Guidance* for questions about calculating GHG emissions
    - http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep-guid/ghg-rep-guid.htm
  - See slides from December 2008 reporting workshop for an overview
    - http://www.arb.ca.gov/cc/ccei/meetings/meetings.htm

GHG Reporting Tool

- GHG Reporting Tool designed to directly address needs of reporters
- Provides reporting, QA, certification, tracking, and verification access
- Allows password-protected access by multiple facility users
- Training Site available for practice
- Shares software platform used by U.S. EPA and The Climate Registry

9

General Usage of the Tool

Using the GHG Reporting Tool
Ye Report Year   rting Year

1. Register Your First Facility & User Account (Home Page)
2. Register Additional Facilities (Inside Tool)
3. Complete Basic Facility Information
4. Set Up Additional Users
5. Create Annual Report Structure (Emitting Activities, Units...)
6. Enter Annual Data for 2008
7. Submit Annual 2008 Report

Using the GHG Reporting Tool
Ye Report Year   rting year

1. Update Annual Report Structure If Needed.
2. Enter Annual Data for 2009
3. Submit Annual 2009 Report

10

Electricity Generating And Cogeneration Reporting

- Party with operational control responsible for report submittal
- Report fuel types and quantities
- Report stationary combustion emissions of CO_2, CH_4, N_2O
  - CO2 from biomass fuels reported separately
- Report process and fugitive, if applicable
- Exempt sources as specified in regulation §95101(c) (e.g., portable equipment and backup generators)
- Use default factors for *de minimis* emissions, start up fuels, cogeneration abbreviated reports

11

GHG Reporting Tool Overview

Electricity Generating and Cogeneration Facilities

Checklist

Initial Steps

1. Prepare for Reporting
2. Register
3. Manage General Facility Information

Step 4-6: Facility Information Module

Steps 7-9: Annual Reporting Module

10. Perform QA Checks & Certify Report

13

Checklist

Facility Information Module

4. Set up *Emitting Activities*
5. Set up *Devices, if needed*
6. Set up *Energy & Production Categories*

Annual Reporting Module

7. Report *Fuels and Emissions* Data for *Emitting Activities*
8. Report *Device* Level Fuel Use, if needed
9. Report *Energy & Production* Information

10. Perform QA Checks & Certify Report

14

Step 1 – Prepare for Reporting

- Obtain Facility ID and Access Code
- Review Reporting Tool Primer
  - http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-tool.htm
- Review step-by-step guidance for reporting using tool
  - http://www.arb.ca.gov/cc/reporting/ghg-rep/ghgstepwisegsc.pdf
- Collect Facility Information

15

Collect Facility Information

- Emitting Activities or Sources
- Emissions Data
- Fuel Use
- Energy and Production
- Wholesale Power Exported Directly Out-of-State

16

Step 2 – Register (1)

- Use ARB ID and Access Code provided by ARB
- You must "Register" first, use the Registration button, not "Login"
- The first person to register is the default Facility Manager
  - Facility Manager certifies data as complete and accurate
  - Two people may be designated as Facility Managers

17

Step 2 – Register (2)

18

Step 2 – Register (3)

19

20

Create Account

- Enter name, address, email
- Email address must be unique
  - If email address is already in system, use that account to associate with additional facilities
    - "Register Additional Organization" after login
- Create personal User ID and Password
  - Login using this information
- Accept User Agreement
- Account is created

21

User Roles and Permissions:
Facility Mangers and Reporters

- Access and responsibilities
- Facility manager roles and reporter roles
- Two facility managers possible

Step 3 - Manage General Facility Information (1)

- Login to account with personal User ID and password (not ARB ID)
- Facility Details tab
  - Primary & Secondary Sector
  - Nameplate generating capacity
  - Confidential data flag
- Generating Units tab
  - Generating unit type
  - Nameplate generating capacity
  - Unit operating status
  - Cogeneration information: prime mover, heat recovery system, and steam use

23

Step 3 – Manage General Facility Information (2)

- Addresses
  - Mailing and physical
- Geographic Location (lat/long)
- Contacts (i.e., Users)
  - Allow others access to facility data
- Facility documents

Note: Full demonstration of Steps 2 and 3 is available from the GSC Webinar at: http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-tool.htm

24

Demonstrate Reporting Tool

25

Checklist

Facility Information Module

4. → **Set up *Emitting Activities* (facility and unit levels)**
5. Set up *Devices*
6. Set up *Energy & Production Categories*

Steps 7-9: Annual Reporting Module

10. Perform QA Checks & Certify Report

26

Checklist

Facility Information Module

- ✓ Set up *Emitting Activities*
5. **→ Set up *Devices***
6. Set up *Energy & Production Categories*

Steps 7-9: Annual Reporting Module

10. Perform QA Checks & Certify Report

27

Summary of Key Terms

- **Emitting Activity**
  - Equipment or process with capacity to produce GHG emissions
  - Can be individual activities (e.g., a specific boiler) or a complete reporting category (e.g., all facility stationary combustion)
  - Must meet 95% accuracy unless de minimis emissions
- **Device**
  - Used to indicate the presence of a fuel meter used for reporting fuel use, not emissions
  - Not a source of emissions and not a piece of emitting equipment
  - Not required to meet 95% accuracy unless used for emissions calculations

28

Demonstration

■Electricity Generating Unit
(operated as part of another reporting facility)

■Emitting Activities

　■Topping Cycle Cogeneration

　■Bottoming Cycle Cogeneration

29

Demonstration: GSC or Other Reporting Sector with Electricity Generating Unit

- If cogeneration or electricity generation ≥ 1 MW and emits ≥ 2,500 metric tonnes from these sources:
  - Additional reporting requirements apply
  - Refer to cogen and electricity generation reporting requirements
  - Descriptive flow chart in Chapter 12 of *Instructional Guidance*

- If reporting thresholds not met, report emissions as part of stationary combustion

30

Demonstration: GSC with Electricity Generating Unit

- Several possible configurations in facility set up for reporting
  - Based on regulation requirements, meter accuracy, desired level of aggregation, etc.
- Preview options shown for consideration of configurations

31

Case Study: Facility Configuration

- Two boilers
  - Two separate natural gas meters
- Electricity Generation (or CHP)
  - Natural gas
  - Biogas

32

Case Study: Equipment Approach

- Boilers
  - Include both boilers as one combined *Emitting Activity,* report fuel use by subtraction (meter #1-meter #2), report emissions as "summed"
  - Include 2 devices for meter-level fuel use

- Generating Unit
  - Set up one Emitting Activity for Generating Unit
  - Include two fuels, report fuel use and emissions for both, emissions "summed"

Case Study: Fuel Approach

- Natural Gas Revenue Meter
  - Set up as one facility level stationary combustion *emitting activity*
  - Set up 2 *devices* for meter-level fuel use

- Generating Unit
  - Set up one Emitting Activity for Generating Unit
  - Include two fuels, report fuel use and emissions, NG is "supplemental," biogas is "summed"

Demonstration: GSC with
Electricity Generating Unit
Facility Information Module

- Facility Details tab
  - Primary Sector: GSC (e.g., University Campus > 25,000MT CO2)
  - Secondary Sector: Electricity Generation or Cogeneration
  - Nameplate Generating Capacity = 10 MW
- Emitting Activity tab (equipment approach) - combined boilers "summed"
- Devices tab – 3 meters (#1,#4,#5)
- Generating Units tab
  - Nameplate Generating Capacity = 10 MW
  - Emitting Activity "summed" Co-fired Natural Gas (1050-1075 Btu/scf) and Biogas

Demonstrate
Reporting Tool

Checklist

Facility Information Module

✓ Set up *Emitting Activities*

✓ Set up *Devices*

6. → Set up *Energy & Production Categories*

Steps 7-9: Annual Reporting Module

10. Perform QA Checks & Certify Report

37

Step 6 – Set up Energy and Production Categories

38

Questions and Comments

▪ For verbal comments, "Raise Hand" using Webinar so we can activate your line

▪ Or Type question in Webinar screen

39

Annual Report Module – New Submission

40

Checklist

✓ Steps 4-6: Facility Information Module

Annual Reporting Module

7. → **Report *Fuels and Emissions* Data for *Emitting Activities***

8. Report *Device* Level Fuel Use, if needed

9. Report *Energy & Production* Information

_____

10. Perform QA Checks & Certify Report

41

Step 7 - Report Emissions and Fuels Information

42

Step 7 - Report Emissions and Fuels Information

- Beginning with Annual Reporting menu, select each emitting activity
- Select each fuel for emitting activity
- Input fuel use for each fuel
  - Input emissions calculation data (i.e., emission factors, HHV, carbon content)
- Select calculation method; input emissions data
- Repeat for each emitting activity until finished
- Keep track to ensure completion

43

Checklist

✓ Steps 4-6: Facility Information Module

Annual Reporting Module

✓ Report *Fuels and Emissions* Data for *Emitting Activities*

8. → **Report *Device* Level Fuel Use, if needed**

9. Report *Energy & Production* Information

_____

10. Perform QA Checks & Certify Report

44

Demonstrate Reporting Tool

45

Questions and Comments

- For verbal comments, "Raise Hand" using Webinar so we can activate your line
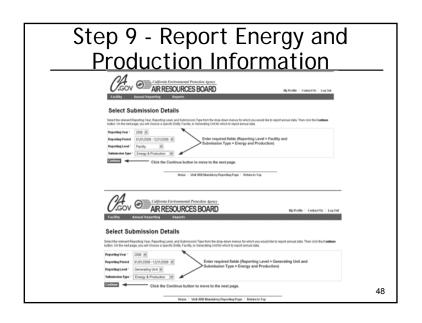
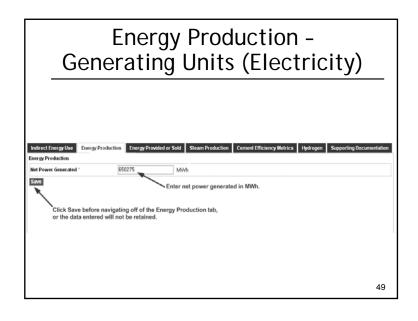- Or Type question in Webinar screen

46

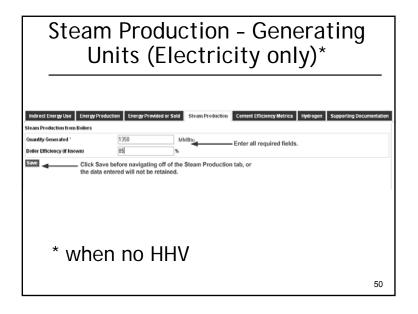# Checklist

✓ Steps 4-6: Facility Information Module

Annual Reporting Module
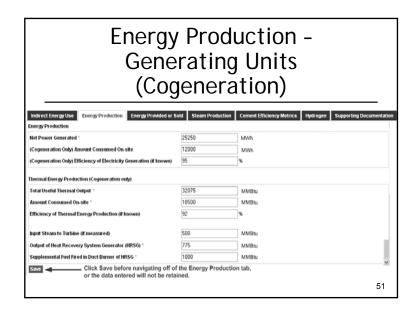
✓ Report *Fuels and Emissions* Data for *Emitting Activities*

✓ Report *Device* Level Fuel Use, if needed
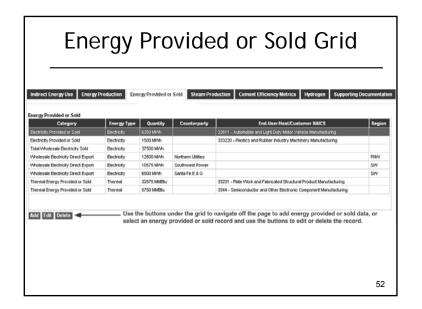
9. → Report *Energy & Production Information*
_____

10. Perform QA Checks & Certify Report

47

Step 9 - Report Energy and Production Information

48

Energy Production – Generating Units (Electricity)

| Indirect Energy Use | Energy Production | Energy Provided or Sold | Steam Production | Cement Efficiency Metrics | Hydrogen | Supporting Documentation |

Energy Production

Net Power Generated *　　　[650275]　　MWh

[Save]

→ Enter net power generated in MWh.

Click Save before navigating off of the Energy Production tab,
or the data entered will not be retained.

49

Steam Production – Generating Units (Electricity only)*

| Indirect Energy Use | Energy Production | Energy Provided or Sold | Steam Production | Cement Efficiency Metrics | Hydrogen | Supporting Documentation |

Steam Production from Boilers

Quantity Generated *　　　[1350]　　MMBtu　　← Enter all required fields.
Boiler Efficiency (if known)　[85]　　%

[Save] ← Click Save before navigating off of the Steam Production tab, or
the data entered will not be retained.

* when no HHV

50

Energy Production – Generating Units (Cogeneration)

| Indirect Energy Use | Energy Production | Energy Provided or Sold | Steam Production | Cement Efficiency Metrics | Hydrogen | Supporting Documentation |

Energy Production

Net Power Generated *	25250	MWh
(Cogeneration Only) Amount Consumed On-site	12000	MWh
(Cogeneration Only) Efficiency of Electricity Generation (if known)	95	%

Thermal Energy Production (Cogeneration only)

Total Useful Thermal Output *	32075	MMBtu
Amount Consumed On-site *	18500	MMBtu
Efficiency of Thermal Energy Production (if known)	92	%
Input Steam to Turbine (if measured)	500	MMBtu
Output of Heat Recovery System Generator (HRSG) *	775	MMBtu
Supplemental Fuel Fired in Duct Burner of HRSG *	1000	MMBtu

[Save] ← Click Save before navigating off of the Energy Production tab,
or the data entered will not be retained.

51

Energy Provided or Sold Grid

| Indirect Energy Use | Energy Production | Energy Provided or Sold | Steam Production | Cement Efficiency Metrics | Hydrogen | Supporting Documentation |

Energy Provided or Sold

Category	Energy Type	Quantity	Counterparty	End-User/Host/Customer NAICS	Region
Electricity Provided or Sold	Electricity	6350 MWh		33611 - Automobile and Light Duty Motor Vehicle Manufacturing	
Electricity Provided or Sold	Electricity	1500 MWh		333220 - Plastics and Rubber Industry Machinery Manufacturing	
Total Wholesale Electricity Sold	Electricity	37500 MWh			
Wholesale Electricity Direct Export	Electricity	12500 MWh	Northern Utilities		PNW
Wholesale Electricity Direct Export	Electricity	10575 MWh	Southwest Power		SW
Wholesale Electricity Direct Export	Electricity	6500 MWh	Santa Fe E & G		SW
Thermal Energy Provided or Sold	Thermal	32575 MMBtu		33231 - Plate Work and Fabricated Structural Product Manufacturing	
Thermal Energy Provided or Sold	Thermal	5750 MMBtu		3344 - Semiconductor and Other Electronic Component Manufacturing	

[Add] [Edit] [Delete] ← Use the buttons under the grid to navigate off the page to add energy provided or sold data, or
select an energy provided or sold record and use the buttons to edit or delete the record.

52

Wholesale Electricity Direct Export

53

Cogeneration Only - Thermal Energy Provided or Sold

54

Cogeneration Only - Electricity Provided or Sold

55

Cogeneration Only - Wholesale Electricity Sold
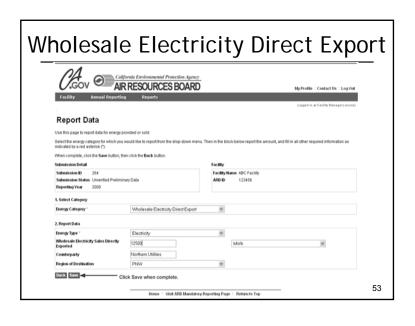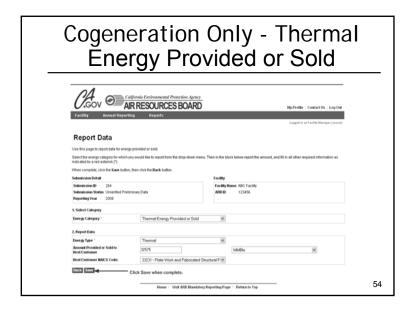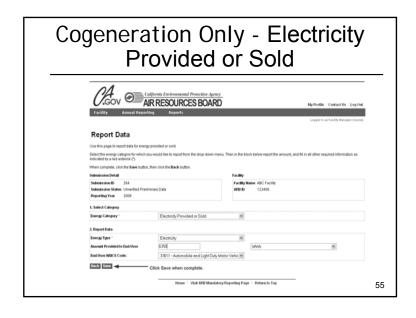

56

Checklist

✓ Steps 4-6: Facility Information Module

✓ Steps 7-9: Annual Reporting Module

10. → Perform QA Checks & Certify Report

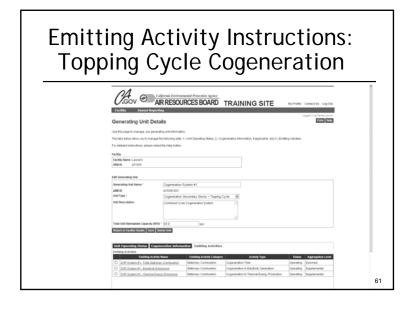57

Step 10 – Perform QA Checks and Certify Report (1)

- QA checks help ensure complete reporting
- The quality assurance system provides Warning messages and Critical Errors
  - Critical Errors or Failures must be corrected before certifying data
  - "Warnings" should be evaluated to ensure that errors are not present that affect the completeness or accuracy of the submittal
- Run two separate QA routines:
  (1) Emissions and Fuels data and
  (2) Energy and Production data

58

Step 10 – Perform QA Checks and Certify Report (2)

- After QA, then "Ready for Certification"
  - Clicking locks data and queues data for Facility Manager for final Certification
- Only those designated as a Facility Manager for the facility may certify the report
  - Completing "Certification" indicates that data are complete and accurate
  - Upon Certification, data are locked and cannot be edited without unlocking data
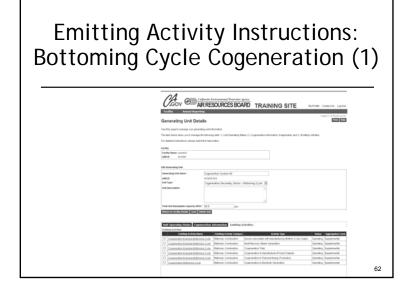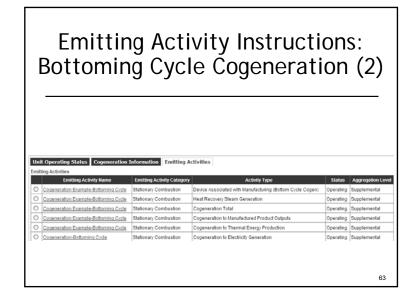 - This mechanism prevents editing of data during the verification process unless needed

59

Questions and Comments

- For verbal comments, "Raise Hand" using Webinar so we can activate your line

- Or Type question in Webinar screen

60

Emitting Activity Instructions: Topping Cycle Cogeneration

61

Emitting Activity Instructions: Bottoming Cycle Cogeneration (1)

62

Emitting Activity Instructions: Bottoming Cycle Cogeneration (2)

Unit Operating Status	Cogeneration Information	Emitting Activities			
Emitting Activities				
Emitting Activity Name	Emitting Activity Category	Activity Type	Status	Aggregation Level
○ Cogeneration Example-Bottoming Cycle	Stationary Combustion	Device Associated with Manufacturing (Bottom Cycle Cogen)	Operating	Supplemental
○ Cogeneration Example-Bottoming Cycle	Stationary Combustion	Heat Recovery Steam Generation	Operating	Supplemental
○ Cogeneration Example-Bottoming Cycle	Stationary Combustion	Cogeneration Total	Operating	Supplemental
○ Cogeneration Example-Bottoming Cycle	Stationary Combustion	Cogeneration to Manufactured Product Outputs	Operating	Supplemental
○ Cogeneration Example-Bottoming Cycle	Stationary Combustion	Cogeneration to Thermal Energy Production	Operating	Supplemental
○ Cogeneration-Bottoming Cycle	Stationary Combustion	Cogeneration to Electricity Generation	Operating	Supplemental

63

Bottoming Cycle Cogeneration (3)

Generating Unit Emissions
- Stationary Combustion
- Associate Fuels
- Report GHGs: CO2-FF, N2O, CH4, CO2-biomass
  1. Required - Cogeneration Total
     (summed or supplemental)
  2. Optional - Duct Burners on HRSG
     (supplemental)
  3. Optional - Device assoc with Manufacturing
     (Bottoming cycle, only) (supplemental)

64

Bottoming Cycle Cogeneration (4)

Distributed Emissions
- Stationary Combustion
- Do not select fuels (Remaining Emissions)
- All "supplemental"—not added to facility level
- Report only CO2-FF from stationary combustion
  1. Required - Cogen to manufactured product outputs (Bottoming cycle, only)
  2. Required - Cogen to thermal energy production
  3. Required - Cogeneration to electricity generation

65

Additional Questions and Comments?

66

ARB Contacts

General Email Address for Questions
ghgreport@arb.ca.gov

Richard Bode – Chief
Emissions Inventory Branch
rbode@arb.ca.gov
(916) 323-8413

Doug Thompson – Manager
Climate Change Reporting Section
dthompson@arb.ca.gov
(916) 322-7062

GHG Mandatory Reporting Website
http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm

Staff Contacts

General Reporting & GSCs, Patrick Gaffney
pgaffney@arb.ca.gov (916) 322-7303

Cogeneration, Renée Lawver
rlawver@arb.ca.gov (916) 323-0296

Cement, Michael Gabor
mgabor@arb.ca.gov (916) 324-1847

Refineries & Hydrogen Plants, Byard Mosher
bmosher@arb.ca.gov (916) 323-1185

Electric Power Sector, Pamela Burmich
pburmich@arb.ca.gov (916) 323-8475

Verification Lead, Rajinder Sahota
rsahota@arb.ca.gov (916) 323-8503

Thanks for participating

69